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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,710	09/09/2003	Heinz-Joachim Belt	037110.52697US	8741

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CROWELL & MORING LLP  
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WASHINGTON, DC 20044-4300

EXAMINER
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NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

CU1

**Office Action Summary**

Application No.

10/657,710

Applicant(s)

BELT ET AL.

Examiner

Ngoc-Yen M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pez (4,406,825) or Jones (4,003,984), either one in view of Fujioka et al (4,950,464).

Pez '825 discloses that  $\text{SO}_2\text{F}_2$ , i.e., sulfuryl fluoride, is pretreated by storage over dry KF to remove any adventitious HF before being used in a process (note column 11, lines 3-6).

Since the sulfuryl fluoride is passed from the storage, which contains the KF, to the reactor, it is considered that the step of contacting sulfuryl fluoride with KF is carried out immediately prior to the use of the sulfuryl fluoride.

Jones '984 discloses a process for producing sulfuryl fluoride (note claim 1). The sulfuryl fluoride is then passed to a tube filled with NaF tablets to remove HF (note column 4, lines 15-18).

Pez '825 and Jones '984 disclose a process for passing sulfuryl fluoride through an alkali metal fluoride to remove HF as stated in the above rejections.

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For the temperature for the contact between sulfuryl fluoride and the alkali metal fluoride, it would have been obvious one of ordinary skill in the art to optimize such temperature in order to facilitate the removal of HF.

Pez '825 and Jones '984 do not disclose the step of regenerate the alkali metal fluoride that acts as an adsorbent for the HF, however, regenerating an adsorbent in order to reuse it is well known and conventional in the art.

Pez '825 and Jones '984 do not disclose the presence of other impurities.

Fujioka '464 teaches that typical impurities in sulfuryl fluoride are hydrogen fluoride, hydrogen chloride, thionyl fluoride, sulfur dioxide, and chlorinated hydrocarbons, such as 1,2 dichloroethane (note column 2, lines 13-19). Fujioka '464 teaches the use of activated alumina and activated carbon to remove the impurities. The process of Fujioka '464 can be carried out in any other, including simultaneously with the process of Pez '825 or the process of Jones '984 as long as the impurities, HF and any other additional impurities, in the sulfuryl fluoride can be removed.

It would have been obvious to one of ordinary skill in the art to use the process of Pez '825 or Jones '984 in combination with the process of Fujioka '464 to purify sulfuryl fluoride which includes not only HF (which can be removed by the alkali metal fluoride as disclosed in Pez '825 or Jones '984) as impurity but also other impurities, such as thionyl fluoride, hydrogen chloride, sulfur dioxide and/or chlorinated hydrocarbons (which can be removed by activated alumina or activated carbon) as suggested by Fujioka '464 because these are known and typical impurities in sulfuryl fluoride. It would also have been obvious to one skilled in the art to optimize the arrangement the

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alkali metal fluoride and the activated alumina or activated carbon in order to facilitate the maximum removal of the impurities from sulfuryl fluoride

Applicant's arguments filed January 6, 2006 have been fully considered but they are not persuasive.

The 102 rejections are withdrawn in view of Applicants' amendments.

Applicants argue that Pez or Jones discloses only the use of KF to remove HF.

Fujioka '464 is applied as stated in the above rejection to teach that beside HF, other contaminants can be present in the sulfuryl fluoride and activated carbon or activated alumina can be used to remove the additional impurities.

Applicants argue that there is motivation to combine the process of Fujioka with the process of either Pez or Jones.

As stated above, it is known and common in the art that sulfuryl fluoride may contain other impurities beside HF. It would have been obvious to one skilled in the art to use the activated carbon or activated alumina as suggested in Fujioka '464 to remove these additional impurities from sulfuryl fluoride. Even if the activated alumina as disclosed in Fujioka '464 can remove HF, the use of both activated alumina and alkali metal fluoride as disclosed in Pez or Jones to remove HF because combining two or more materials disclosed by the prior art for the same purpose to form a combination that is to be used for the same purpose has been held to be a prima facie case of obviousness, see *In re Kerkhoven*, 205 USPQ 1069.

Applicants argue that even if Fujioka is combined with either Pez or Jones, the combination of these references fails to teach or reasonably suggest a single sorptive purification step consisting of contacting the contaminated sulfuryl fluoride with an alkali metal fluoride and at least one sorbent.

The use of the alkali metal fluoride to remove HF from sulfuryl fluoride, as disclosed in Pez or Jones and the use of the activated carbon or activated alumina to remove other impurities, as disclosed in Fujioka '464, can be carried out in any order, including simultaneously, as long as all the impurities can be removed. It would have been obvious to one of ordinary skill in the art to optimize such order to obtain the best results.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 or (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.

  
Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn  
March 19, 2006